Title: Gradient mapping of functions of several variables

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Abstract: In the thesis we prove that the following statement holds true. For each $d \geq 2$, for each open bounded set $U \subset \mathbb{R}^d$ and for each set $F \subset \mathbb{R}^d$ of the Borel class F_σ there exists an everywhere differentiable function $u\colon \mathbb{R}^d \to \mathbb{R}$ such that

$$\begin{aligned}
&\nabla u(x) \in \overline{U} \quad \text{for all } x \in \mathbb{R}^d,\\
&\nabla u(x) \in U \quad \text{for all } x \in F,\\
&\nabla u(x) \in \partial U \quad \text{for } \lambda_d\text{-almost all } x \in \mathbb{R}^d \setminus F.
\end{aligned}$$